# SUPER○®

SUPERWORKSTATION 5033C-T

USER'S MANUAL

Revision 1.0

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperWorkstation 5033C-T. Installation and maintainance should be performed by experienced technicians only.

The 5033C-T is a high-end, single processor mid-tower workstation based on the SC733T-350 mid-tower workstation chassis and the Super P4SCT+II motherboard. The P4SCT+II supports a single Intel® Pentium® 4 HT (hyper-threading) processor of up to 3.40 GHz with an integrated 512KB advanced transfer cache or Intel® Celeron® processors of up to 2.80 GHz with an integrated 128KB advanced transfer cache.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the system and describes the main features of the Super P4SCT+II motherboard and the SC733T-350 chassis.

Chapter 2: Server Installation

This chapter describes the steps necessary to install the SuperWorkstation 5033C-T into a rack and check out the server configuration prior to powering up the system. If your server was ordered without the processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

Chapter 3: System Interface

Refer to this chapter for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 4: System Safety

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperWorkstation 5033C-T.

Chapter 5: Advanced Motherboard Setup

Chapter 5 provides detailed information on the P4SCT+II motherboard, including the locations and functions of connectors, headers and jumpers. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the motherboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC733T-350 workstation chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring Serial ATA or peripheral drives and when replacing system power supply units and cooling fans.

Chapter 7: BIOS

The BIOS chapter includes an introduction to BIOS and provides detailed information on running the CMOS Setup Utility.

Appendix A: BIOS POST Messages

Appendix B: BIOS POST Codes

Appendix C: Software Installation

Appendix D: System Specifications

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Chapter 1
Introduction

1-1   Overview

Supermicro's 5033C-T is a high-end single processor workstation. The 5033C-T is comprised of two main subsystems: the SC733T-350 chassis and the P4SCT+II motherboard. The P4SCT+II supports a single 478-pin Intel Pentium 4 microPGA processor at up to 3.40 GHz with HT (hyper-threading) technology (or single a Intel Celeron processor of up to 2.80 GHz) and up to 4 GB of ECC or non-ECC unbuffered DDR400/333/266 SDRAM memory. Please refer to our web site for information on operating systems that have been certified for use with the 5033C-T (www.supermicro.com) and for regular updates on supported processor speeds.

In addition to the motherboard and chassis, various hardware components may have been included with the 5033C-T, as listed below.

- One CPU retention mechanism (SKT-0109)

- Serial ATA (SATA) Accessories:
  One (1) internal SATA backplane (CSE-SATA-733)
  Four (4) SATA cables (CBL-0044)
  One (1) SATA LED cable (CBL-0056)
  Four (4) SATA drive carriers (CSE-PT39)

- One (1) 12-cm exhaust fan (FAN-0055)

- One (1) 9-cm cooling fan with air shroud (FAN-0060)

- One (1) CD containing drivers and utilities

- SuperWorkstation 5033C-T User's Manual

1-2   Motherboard Features

At the heart of the SuperWorkstation 5033C-T lies the P4SCT+II, a single pro-cessor motherboard designed to provide maximum performance. Below are the main features of the P4SCT+II.

Chipset Overview

The P4SCT+II is based on Intel's 875P chipset. See Figure 1-1 for a block diagram of the chipset. The 875P chipset is made up of two main components:

The Memory Controller Hub (MCH)

The I/O Controller Hub (6300ESB)

Memory Controller Hub (MCH)

The MCH includes the host (CPU) interface, memory interface, I/O controller hub interface, CSA interface and AGP interface. It contains advanced power manage-ment logic and supports dual-channel (interleaved) DDR memory, providing band-width of up to 6.4 GB/s using DDR-400 SDRAM. The MCH supports the following front side bus/memory bus configurations: 800 MHz FSB with a 400/333 memory interface, a 533 MHz FSB with a 333/266 memory interface and a 400 MHz FSB with a 266 MHz memory interface. The AGP interface supports 8x data transfers and operates at a peak bandwidth of 2.1 GB/s. The CSA (Communications Streaming Architecture) interface connects the MCH to a Gigabit Ethernet con-troller.

I/O Controller Hub (6300ESB)

The 6300ESB ICH controller hub provides the I/O subsystem with access to the rest of the system. It integrates two Serial ATA (SATA) host controllers, a dual-channel Ultra ATA/100 bus master IDE controller, an SMBus 2.0 controller, the LPC/Flash BIOS interface, the PCI-X (66MHz) 1.0 interface, the PCI 2.2 interface and the System Management Controller.

Processors

The P4SCT+II supports a single Intel® Pentium® 4 HT (hyper-threading) processor of up to 3.40 GHz with an integrated 512KB advanced transfer cache or Intel® Celeron® processors of up to 2.80 GHz with an integrated 128KB advanced transfer cache. Please refer to the support section of our web site for a complete listing of supported processors (http://www.supermicro.com/support/).

Memory

The P4SCT+II has four (4) 184-pin DIMM sockets that can support up to 4 GB of ECC or non-ECC unbuffered DDR400/333/266 SDRAM modules. (Memory operates in a dual-channel, or interleaved configuration for increased performance.) Module sizes of 128 MB, 256 MB, 512 MB and 1 GB may be used to populate the DIMM slots.

Serial ATA

A Serial ATA controller is incorporated into the 875P chipset to provide a two-port Serial ATA subsystem. A Marvell 88SX5080 controller is also included onboard the P4SCT+II, which provides support for four additional SATA ports. The SATA drives are hot-swappable units and RAID 0 and RAID 1 supported.

Note: The operating system you use must have RAID support to enable the hot-swap capability and RAID function of the Serial ATA drives.

PCI Expansion Slots

The P4SCT+II has two 32-bit, 33 MHz (5V) PCI slots and three 64-bit, 66 MHz (3.3V) PCI-X slots. The SC733T-350 chassis can accommodate cards being installed in all five slots.

Ethernet Ports

The P4SCT+II has an Intel® 82547GI CSA Gigabit Ethernet controller and an Intel® 82541 Gigabit Ethernet controller onboard. Together these controllers can support a total of two Gigabit LAN ports.

AGP Slot

A 15.V 8xAGP slot for use with high-performance video cards is included on the motherboard. The AGP slot is backward compatible with 4xAGP and 2xAGP.

Onboard Controllers/Ports

An onboard IDE controller supports one floppy drive and up to four Ultra ATA 100 hard drives or ATAPI devices. Onboard I/O backpanel ports include one serial COM port, one parallel port, four USB ports, PS/2 mouse and keyboard ports and two GLAN (RJ45) ports.

Other Features

Other onboard features that promote system health include eight voltage monitors, a chassis intrusion header, auto-switching voltage regulators, chassis and CPU overheat sensors, virus protection and BIOS rescue.
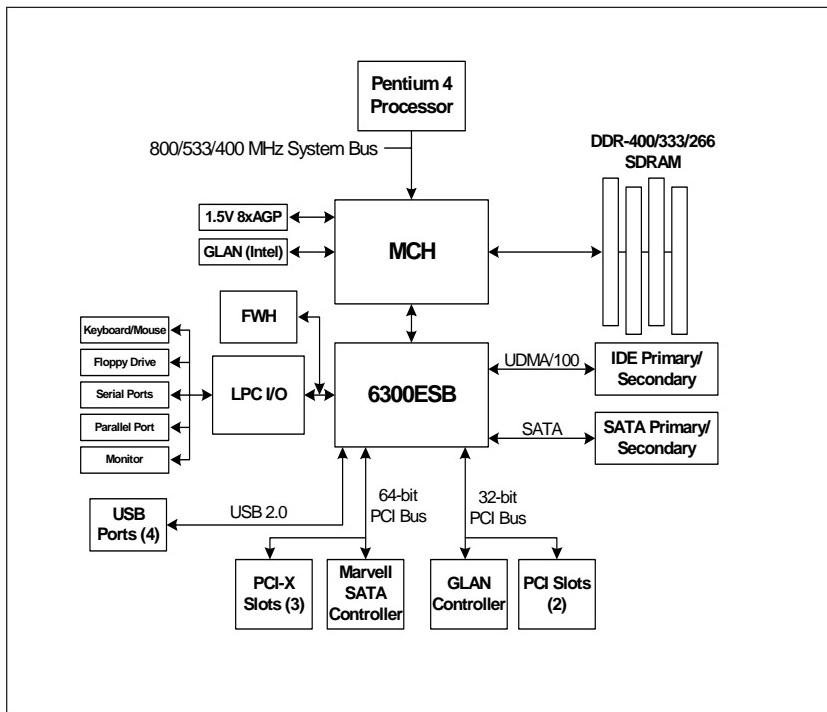
Figure 1-1 . Intel 875P Chipset:
System Block Diagram

Note: This is a general block diagram. Please see Chapter 5 for details.

1-3   Chassis Features

The SuperWorkstation 5033C-T is a mid-tower workstation type configuration. The following is a general outline of the main features of the SC733T-350 chassis.

System Power

When configured as a SuperWorkstation 5033C-T, the SC733T-350 chassis includes a single low-noise 350W power supply.

Serial ATA Subsystem

The SC733T-350 chassis was designed to support up to four Serial ATA hard drives. The Serial ATA drives are hot-swappable units. ATA/100 IDE drives are also supported.

Control Panel

The SC733T-350's control panel provides important system monitoring and control information. LEDs indicate power on, network activity, hard disk drive activity and overheat conditions. The control panel also includes a main power button and a system reset button.

Rear I/O Panel

The rear I/O panel on the SC733T-350 provides seven motherboard expansion slot, one COM port (another is internal), two USB ports, PS/2 mouse and keyboard ports, a parallel (printer) port, a graphics port and two Gb Ethernet ports. (See Figure 1-2.)

Cooling System

The SC733T-350 chassis has an innovative cooling design that features one 12-cm exhaust fan and one 9-cm thermal cooling fan. The fans plug into headers on the motherboard and operate at full rpm continuously.

Figure 1-2.   Rear I/O Panel
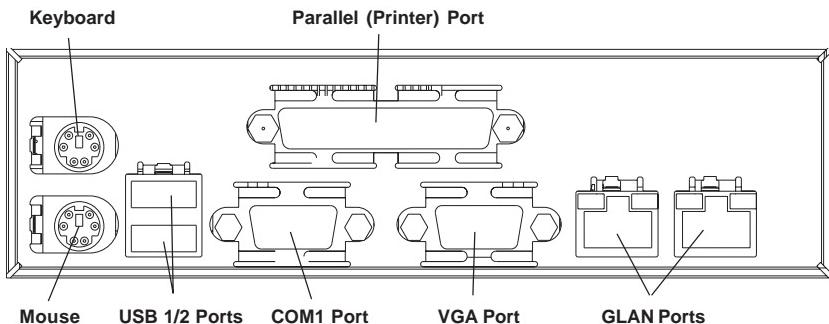
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Notes

Chapter 2
System Installation

2-1 Overview

This chapter provides a quick setup checklist to get your SuperWorkstation 5033C-T up and running. Following the steps in the order given should enable you to have the system operational within a minimal amount of time. If your system is not already fully integrated with a motherboard, processor, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

2-2   Unpacking the SuperWorkstation 5033C-T

You should inspect the box the SuperWorkstation 5033C-T was shipped in and note if it was damaged in any way. If the server itself shows damage, you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for setting up and operating the SuperWorkstation 5033C-T. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet.

Once the SuperWorkstation 5033C-T is placed in the appropriate location, slide the locking tabs on each caster down to keep it stationary.

! **Warnings and Precautions!** !

- Ensure that the caster wheels on the workstation are locked.
- Review the electrical and general safety precautions in Chapter 4.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the power supply units and hot-swap Serial ATA drive to cool before touching them.
- To maintain proper cooling, always keep all chassis panels closed and all SATA carriers installed when not being serviced.

2-3   Setting Up the System

You should first open the left side panel (when facing the front of the chassis) to make sure the motherboard is properly installed and all connections have been made.

Checking the Motherboard Setup

1. **Accessing the inside of the 5033C-T (Figure 2-1)**
   Begin by removing the two screws from the back lip of the side cover (this is the left cover when looking at the chassis from the front.) Grab the handle and gently pull the side cover out to release it from its position. Once the side cover is out of its position, slide the cover out of the chassis.

2. **Check the CPU (processor)**
   You may have one processor already installed into the system board. The processor should have its own heatsink attached. See Chapter 5 for instructions on processor installation.

3. **Check the system memory**
   Your 5033C-T system may have come with system memory already installed. Make sure all DIMMs are fully seated in their slots. For details on adding system memory, refer to Chapter 5.

4. **Installing add-on cards**
   If desired, you can install up to five add-on cards to the system. See Chapter 5 for details on installing PCI-X/PCI add-on cards.

5. **Check all cable connections and airflow**
   Make sure all power and data cables are properly connected and not blocking the airflow. See Chapter 5 for details on cable connections.

Figure 2-1. Accessing the Inside of the 5033C-T
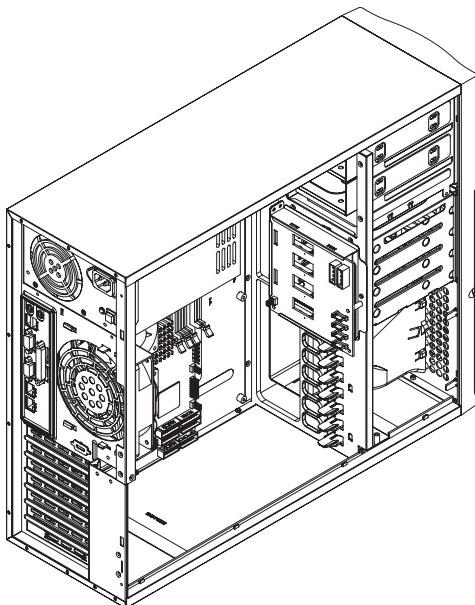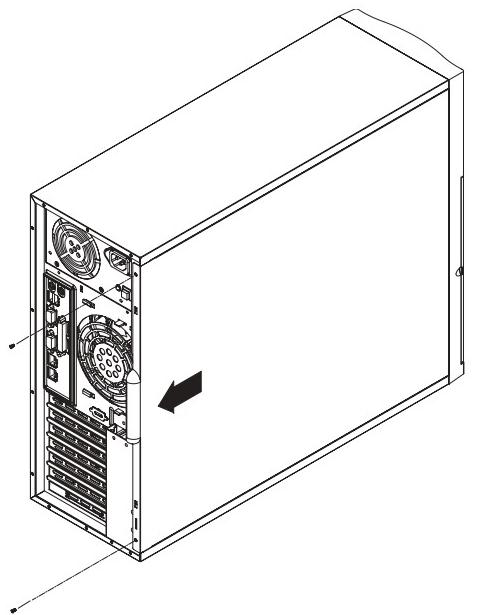
Checking the Drive Bay Setup

Next, you should check to make sure the peripheral drives and the Serial ATA drive and Serial ATA backplane have been properly installed and all essential connections have been made.

1. **Accessing the peripheral drive bays**
   To install or remove a component in the 3.5" and/or 5.25" drive bay(s), you will need to remove the side chassis cover. See the installation and removal sections for the peripheral drives in Chapter 6.

2. **Check the Serial ATA disk drives**
   Depending upon your system's configuration, your system may have up to four Serial ATA drives already installed. If you need to install or remove an SATA drive, please refer to the appropriate section in Chapter 6.

3. **Check the airflow**
   Cooling air is provided by a 9-cm internal cooling fan and a 12-cm exhaust fan. The system component layout was carefully designed to promote sufficient airflow throughout the chassis. Also note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fan. Please keep this in mind when rerouting or adding/removing cables.

4. **Supplying power to the system**
   The last thing you must do is to provide input power to the system. Plug the power cord from the power supply unit into a high-quality power strip that offers protection from electrical noise and power surges. It is recommended that you use an uninterruptible power supply (UPS).

Chapter 3
System Interface

3-1   Overview

There are several LEDs on the control panel and one on each Serial ATA drive carrier to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. There are also two buttons on the chassis control panel. This chapter explains the meanings of all LED indi- cators and the appropriate response you may need to take.

3-2   Control Panel Buttons

There are two push-button buttons located on the front of the chassis. These are (in order from left to right) a reset button and a power on/off button.

RESET

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●   **RESET:** The reset switch reboots the system.

⏻

●   **POWER:** This is the main power switch, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

3-3   Control Panel LEDs

The control panel located on the front of the SC733T-350 chassis has four LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

● **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

● **HDD:** Channel activity for all HDDs. This light indicates SATA and (if present) CD-ROM drive activity when flashing.

● **NIC:** Indicates network activity on GLAN1 or GLAN2 when flashing .

● **OVERHEAT:** Indicates an overheat condition in the chassis. This may be caused by cables obstructing the airflow in the system, or the ambient room temperature being too warm. You should also check to make sure that the chassis cover is installed and that all fans are present and operating normally.

3-4   Serial ATA Drive Carrier LEDs

On the front of each Serial ATA drive carrier is a green LED. When illuminated, it indicates drive activity. A connection to the Serial ATA backplane enables this LED to blink on and off when that particular drive is being accessed.

Notes

Chapter 4
System Safety

4-1 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SuperWorkstation 5033C-T from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

- Do not work alone when working with high voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the motherboard, memory modules and CD-ROM drive. When disconnecting power, you should first power down the system with the operating system first and then unplug the power cords of all the power supply units in the system.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease static electrical discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cords must include a grounding plug and must be plugged into grounded electrical outlets.

- Motherboard Battery: **CAUTION** - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarites. This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- CD-ROM Laser: **CAUTION** - this system may have come equipped with a CD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

4-2   General Safety Precautions

Follow these rules to ensure general safety:

- Keep the area around the SuperWorkstation 5033C-T clean and free of clutter.

- The SuperWorkstation 5033C-T weighs approximately 40 lbs (18.2 kg) when fully loaded. When lifting the system, two people at either end should lift slowly with their feet spread out to distribute the weight. Always keep your back straight and lift with your legs.

- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.

- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

4-3   ESD Precautions

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

● Use a grounded wrist strap designed to prevent static discharge.

● Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.

● Touch a grounded metal object before removing the board from the antistatic bag.

● Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.

● Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

● When handling chips or modules, avoid touching their pins.

● Put the motherboard and peripherals back into their antistatic bags when not in use.

● For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

4-4   Operating Precautions

Care must be taken to assure that the chassis cover is in place when the 5033C-T is operating to assure proper cooling. Out of warranty damage to the 5033C-T system can occur if this practice is not strictly followed.

Chapter 5
Advanced Motherboard Setup

This chapter covers the steps required to install the P4SCT+II motherboard into the SC733T-350 chassis, connect the data and power cables and install add-on cards. All motherboard jumpers and connections are also described. A layout and quick reference chart are included in this chapter for your reference. Remember to completely close the chassis when you have finished working with the motherboard to better cool and protect the system.

5-1   Handling the P4SCT+II Motherboard

Electric-static discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully (see previous chapter). To prevent the P4SCT+II motherboard from bending, keep one hand under the center of the board to support it when handling. The following measures are generally sufficient to protect your equipment from electric static discharge.

Precautions

- Use a grounded wrist strap designed to prevent Electric Static Discharge (ESD).
- Touch a grounded metal object before removing any board from its anti-static bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard, add-on cards and peripherals back into their anti-static bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

Unpacking

The motherboard is shipped in antistatic packaging to avoid electrical static discharge. When unpacking the board, make sure the person handling it is static protected.

5-2 Motherboard Installation

This section explains the first step of physically mounting the P4SCT+II into the SC733T-350 chassis. Following the steps in the order given will eliminate the most common problems encountered in such an installation. To remove the motherboard, follow the procedure in reverse order.

1. **Accessing the inside of the 5033C-T (see Figure 2-1)**

    Remove the two screws from the back lip of the side cover (this is the left cover when looking at the chassis from the front.) Grab the handle and gently pull the side cover out to release it from its position. Once the side cover is out of its position, slide the cover out of the chassis.

2. **Removing the rear exhaust fan:**

    You will need to remove the rear exhaust fan before installing the motherboard. Refer to the appropriate section in Chapter 6 for details on removing the rear exhaust fan.

3. **Mounting the motherboard onto the motherboard tray:**

    Carefully mount the motherboard to the motherboard tray by aligning the board holes with the raised metal standoffs that are visible on the bottom of the chassis. Insert screws into all the mounting holes on your motherboard that line up with the standoffs and tighten until snug (if you screw them in too tight, you might strip the threads). Metal screws provide an electrical contact to the motherboard ground to provide a continuous ground for the system. Finish by replacing the fan (reversing the procedure in step 2) and the side cover of the chassis.

5-3   Connecting Cables

After the motherboard is installed, the next step is to connect the cables to the board. These include the data (ribbon) cables for the peripherals and control panel and the power cables.

Connecting Data Cables

The ribbon cables used to transfer data from the peripheral devices have been carefully routed to prevent them from blocking the flow of cooling air that moves through the system. If you need to disconnect any of these cables, you should take care to keep them routed as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). The following data cables (with their locations noted) should be connected. (See the layout on page 5-9 for connector locations.)

- IDE Device cable (J5)

- Floppy Device cable (J7)

- Serial ATA Device cables (JS1, JS2, JS3 and JS4)

- Serial ATA active LED cable (JS9)

- Control Panel cable (JF1)

Connecting Power Cables

The P4SCT+II has a 24-pin primary power supply connector ("ATX Power") at J20 for connection to the ATX power supply. In addition, there is a 4-pin secondary power connector at J21 that also must be connected to your power supply. See Chapter 5 for power connector pin definitions.

Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators.

All JF1 wires have been bundled into a single ribbon cable to simplify this connection. Make sure the red wire plugs into pin 1 as marked on the board. The other end connects to the Control Panel PCB board, located just behind the system status LEDs on the chassis. See Chapter 5 for details and pin descriptions.

Figure 5-1. Control Panel Header Pins
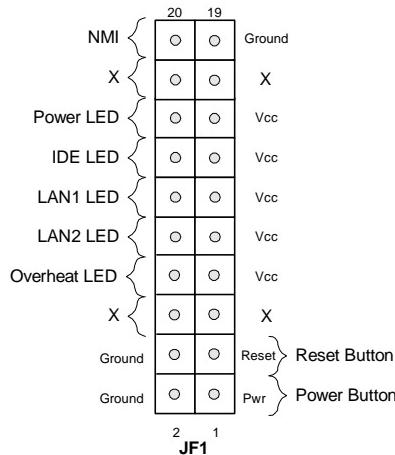
5-4 I/O Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 5-2 below for the colors and locations of the various I/O ports.

Figure 5-2. I/O Port Locations
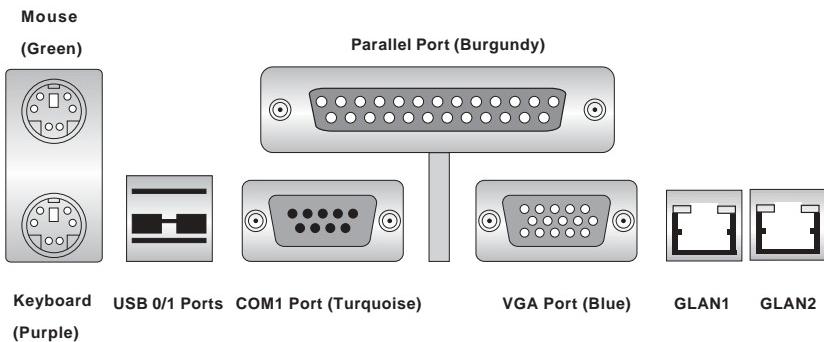
Note: The COM2 port is a header on the motherboard, located near the ATX power connector.

5-5   Installing Processors

⚠ **Avoid placing direct pressure to the top of the processor package. Always remove the power cord first before adding, removing or changing any hardware components.**

Processor Support

The P4SCT+II has a single 478-pin microPGA socket, which supports Intel Pentium 4 processors on .013 micron process.

1. Begin by installing the CPU heatsink mechanism by screwing it into the holes on either side of the CPU socket.

2. Lift the lever on the CPU socket.

3. Install the CPU in the socket by aligning the pins to the holes in the socket. Make sure that Pin 1 of the CPU is seated on Pin 1 of the socket (both corners are marked with a triangle).

4. Press the lever down until you hear it *click* into the locked position.

5. To install the heatsink, please refer to the instructions that came with the Intel heatsink, which you should have received in the same package as the Pentium 4 processor. (You may also refer to http://www.intel.com/support/processors/manuals/p4pman2.htm).

Figure 5-3.   478-pin Socket: Empty and with Processor Installed

5-6   Installing Memory

! **CAUTION! Exercise extreme care when installing or remov-
ing DIMM modules to prevent any possible damage.**

1.   Memory support

The P4SCT+II supports 4 GB of dual-channel, ECC or non-ECC unbuffered
DDR-400/333/266 SDRAM. <u>You **must** populate both DIMM0A and DIMM1A
and/or DIMM0B and DIMM1B with the same size and type of memory
modules. This will result in dual channel (two-way interleaved) operation,
which is faster than single channel operation.</u>

2.   Installing memory modules

Insert each memory module vertically. Pay attention to the notch along the
bottom of the module to prevent inserting it incorrectly. <u>Gently</u> press down
on the DIMM module until it snaps into place in the slot (see Figure 5-4).

Memory Speeds

Host Clock (MHz)	FSB (MHz)	DRAM Data (MT/s)	Shown during POST
100	400	266	DDR266
		333	DDR266
		400	DDR266
133	533	266	DDR266
		333	DDR333
		400	DDR333
200	800	266	DDR266
		333	DDR320*
		400	DDR400

* The BIOS displays DDR320 due to a chipset limitation.

Figure 5-4. DIMM Installation
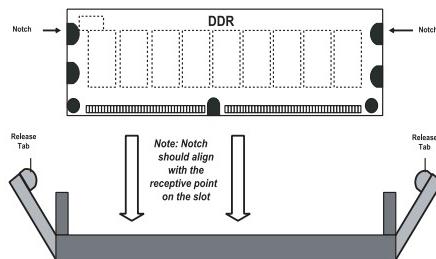
To Install: Insert module vertically and press down until it snaps into place. Pay attention
to the bottom notch.
To Remove: Use your thumbs to gently push each release tab outward to free the DIMM
from the slot.

Figure 5-5. Top View of DIMM Slot

Top View of DDR Slot

Release Tab   Release Tab
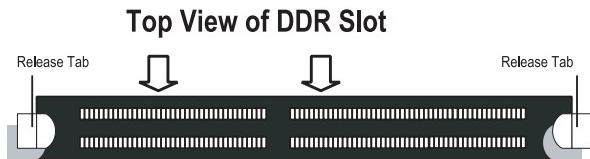
5-7   Adding PCI Cards

1.   **PCI-X/PCI card installation**

The P4SCT+II supports the use of three 64-bit, 66 MHz (3.3V) PCI-X add-on cards
and two 32-bit, 33 MHz (5V) PCI add-on cards. To install an add-on card, begin
by removing the I/O shield for the slot you wish to populate. Fully seat the card
into the card slot on the motherboard, pushing down with your thumbs evenly on
both sides of the card. Finish by using a screw to secure the top of the card
shield to the rear of the chassis. The I/O shields protect the motherboard and
its components from EMI and aid in proper ventilation, so make sure there is
always a shield covering each unused PCI-X/PCI slot.

5-8   Motherboard Details

Figure 5-6. P4SCT+II Layout

(not drawn to scale)
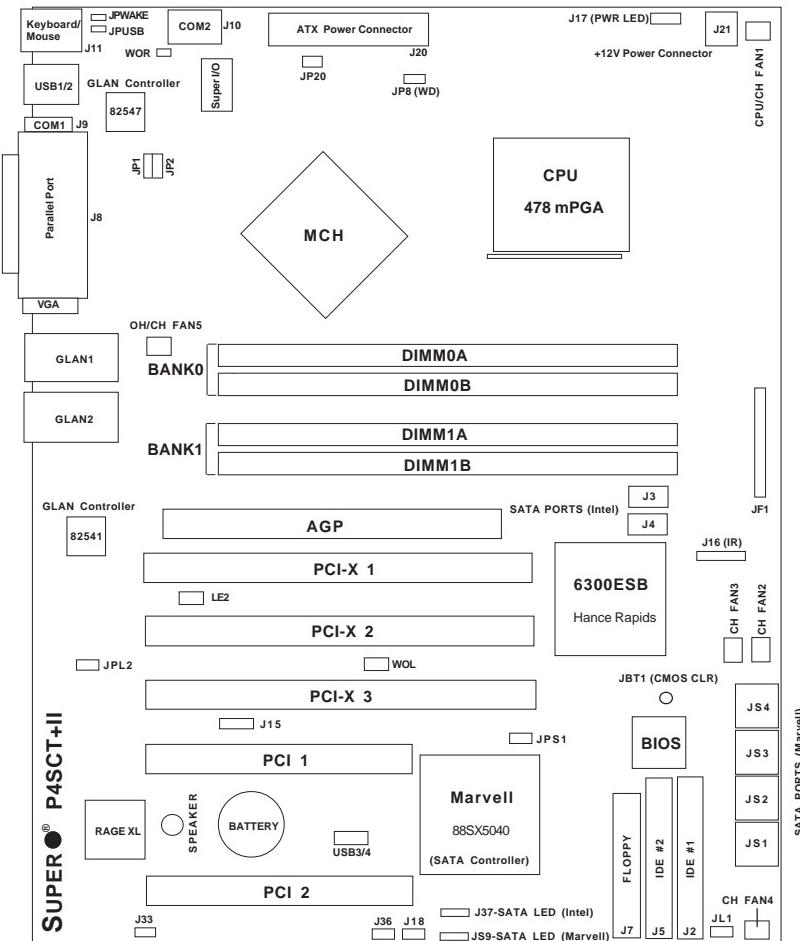
Jumpers not indicated are for test purposes only.

P4SCT+II Quick Reference

Jumpers	Description	Default Setting
J18	Speaker	Pins 3-4 (Int. Buzzer)
J33	VGA Enable/Disable	Pins 1-2 (Enabled)
J36	Keylock Header	Open (Disabled)
JBT1	CMOS Clear	See Section 5-10
JP1/JP2	CPU Clock Speed	Pins 1-2 (Auto)
JP8	Watch Dog Reset	Pins 1-2 (WD Reset)
JP20	Power Force On	Open (Disabled)
JPL2	GLAN2 Enable/Disable	Pins 1-2 (Enabled)
JPS1	JS1-4 SATA En/Dis	Pins 1-2 (Enabled)
JPUSB	USB1/2 Wake Up En/Dis	Pins 1-2 (Disabled)
JPWAKE	Keyboard Wake Up	Pins 1-2 (Disabled)

Connectors	Description
DIMM0A/0B/1A/1B	Memory (DIMM) Slots
Fans 1-5	CPU/CH Fan1, CH Fan2, 3, 4, OH Fan/CH Fan 5
GLAN1/2	Gigabit LAN Ports
J2/J5	IDE1/2 Ports
J3/J4	SATA Connectors 1/2 (Intel Controller)
J7	Floppy Disk Drive Connector
J8	Parallel Printer Port
J9/J10	COM1(J9), COM2(J10)
J11	Keyboard/Mouse Connector
J15	System Management Bus
J16	Infrared Header
J17	Power LED
J20	ATX Power Connector
J21	+12V Power Connector
J36	Keylock Connector
J37	SATA LED Header (Intel ports)
JF1	Front Control Panel
JL1	Chassis Intrusion Header
JP17	Power LED
JS1-4	SATA Connectors 1-4 (Marvell Controller)
JS9	SATA LED Header (Marvell ports)
USB 1/2	Backpanel Universal Serial Ports 1/2
USB 3/4	Universal Serial Ports 3/4 (for front side access)
WOL	Wake-On-LAN
WOR	Wake-On-Ring Header

5-9 Connector Definitions

Power Supply Connectors

The primary power supply connector on the P4SCT+II meets the SSI (Superset ATX) 24-pin specification. Refer to the table on the right for the pin definitions of the ATX 24-pin power connector. You must also connect the 4-pin J21 power connector to your power supply. Refer to the table below right for the J24 (12V) connector.

Important: you must connect J21 to your power supply to meet the ATX safety requirements.

ATX Power Supply 24-pin Connector
Pin Definitions

Pin Number	Definition	Pin Number	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON#	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res(NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

+12V 4-pin PWR Connector (J21)

Required Connection

Pins #	Definition
1 & 2	Ground
3 & 4	+12 V

PW_ON Connector

The PW_ON connector is located on pins 1 and 2 of JF1. This header should be connected to the chassis power button, which you may also configure to put the system into suspend mode (see the Power Button Mode setting in BIOS). To turn off the power when the suspend mode is enabled, depress the power button for at least 4 seconds. See the table on the right for pin definitions.

PW_ON
Pin Definitions
(JF1)

Pin Number	Definition
1	PW_ON
2	+3V

Reset Connector

The reset connector is located on pins 3 and 4 of JF1 and attaches to the reset switch on the computer chassis. See the table on the right for pin definitions.

Reset Pin Definitions (JF1)

Pin Number	Definition
3	Reset
4	Ground

Overheat LED (OH)

Connect an LED to the OH connection on pins 7 and 8 of JF1 to provide advanced warning of chassis overheating. Refer to the table on the right for pin definitions.

Overheat (OH) LED Pin Definitions (JF1)

Pin Number	Definition
7	Vcc
8	GND

GLAN2 LED

The GLAN2 LED connection is located on pins 9 and 10 of JF1. Attach the GLAN2 LED cable to display GLAN2 activity. Refer to the table on the right for pin definitions.

GLAN2 LED Pin Definitions (JF1)

Pin Number	Definition
9	Vcc
10	GND

GLAN1 LED

The GLAN1 LED connection is located on pins 11 and 12 of JF1. Attach the GLAN1 LED cable to display GLAN1 activity. Refer to the table on the right for pin definitions.

GLAN1 LED Pin Definitions (JF1)

Pin Number	Definition
11	Vcc
12	GND

IDE LED

The IDE LED is located on pins 13 and 14 of JF1. This LED is used to display all IDE and SATA activity on all drives. See the table on the right for pin definitions.

IDE Activity LED Pin Definitions (JF1)

Pin Number	Definition
13	+5V
14	HD Activity

Power_LED Connector

The Power LED connector is located on pins 15 and 16 of JF1 (or you may use J17 for a 3-pin connector). This connection is used to provide LED indication of power being supplied to the system. See the table on the right for pin definitions.

PWR_LED Pin Definitions (JF1)

Pin Number	Definition
15	Vcc
16	Control

J17 Pin Definitions

Pin Number	Definition
1	+5V
2	Key
3	Ground

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

NMI Button Pin Definitions (JF1)

Pin Number	Definition
19	Ground
20	Control

SMB Header

A System Management Bus header is located at J15. Connect the appropriate cable here to utilize SMB on your system.

SMB Header Pin Definitions (J15)

Pin Number	Definition
1	Data
2	Ground
3	Clock
4	No Connection

IR Connector

The infrared connector is located on J16. See the table on the right for pin definitions. See the Technical Support section of our web page for information on the infrared devices you can connect to the system.

Infrared Pin Definitions (J16)

Pin Number	Definition
1	+5V
2	CIRRX
3	IRRX
4	Ground
5	IRTX
6	NC

Serial Ports

Two serial ports are included on the motherboard: COM1 is a port located beside the mouse/keyboard ports and COM2 is a header located on the motherboard near the J20 power connector. See the table on the right for pin definitions.

Serial Port Pin Definitions (COM1, COM2)

Pin Number	Definition	Pin Number	Definition
1	CD	6	DSR
2	RD	7	RTS
3	TD	8	CTS
4	DTR	9	RI
5	Ground	10	NC

Note: Pin 10 is included on the header but not on the port. NC indicates no connection.

Fan Headers

There are six fan headers on the P4SCT+II, which are designated CPU/Chassis Fan1, Chassis Fan2, Chassis Fan3, Chassis Fan4 and OH (Overheat)/Chassis Fan5. (Chassis Fan 3 and Chassis Fan 4 are not monitored by BIOS.) Connect the fan on your CPU heatsink to the CPU/Chassis Fan1 header. See the table on the right for pin definitions.

Fan Header Pin Definitions (CPU/ Chassis and Overheat)

Pin Number	Definition
1	Ground (black)
2	+12V (red)
3	Tachometer

Caution: These fan headers are DC power.

Chassis Intrusion

The Chassis Intrusion header is designated JL1. See the board layout in Chapter 1 for the location of JL1 and the table on the right for pin definitions.

Chassis Intrusion Pin Definitions (JL1)

Pin Number	Definition
1	Intrusion Input
2	Ground

Wake-On-LAN

The Wake-On-LAN header is designated WOL on the motherboard. See the table on the right for pin definitions. You must enable the LAN Wake-Up setting in BIOS to use this function. (You must also have a LAN card with a Wake-On-LAN connector and cable to use this feature.)

Wake-On-LAN Pin Definitions (WOL)

Pin Number	Definition
1	+5V Standby
2	Ground
3	Wake-up

Wake-On-Ring

The Wake-On-Ring header is designated WOR. This function allows your computer to receive and be "awakened" by an incoming call when in the suspend state. See the table on the right for pin definitions. You must also have a WOR card and cable to use this feature.

Wake-On-Ring Pin Definitions (WOR)

Pin Number	Definition
1	Ground
2	Wake-up

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse are located on J11. The mouse port is above the keyboard port. See the table on the right for pin definitions.

PS/2 Keyboard and Mouse Port Pin Definitions (J11)

Pin Number	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Universal Serial Bus (USB)

There are two Universal Serial Bus ports located on the I/O panel and an additional two USB headers located on the motherboard.   These headers, labeled USB3/4, can be used to provide front side chassis access (cables not included). See the tables on the right for pin definitions.

USB1/2 Pin Definitions

Pin#	Definition
1	+5V
2	P0-
3	P0+
4	Ground

USB3/4 Pin Definitions

Pin Number	Definition	Pin Number	Definition
1	+5V	2	+5V
3	PO-	4	PO-
5	PO+	6	PO+
7	Ground	8	Ground
		10	Ground

GLAN1/2 (Ethernet) Ports

Two Ethernet ports (designated GLAN1 and GLAN2) are located beside the VGA port on the IO backplane. These ports accept RJ45 type cables.

SATA LED (Marvell)

The SATA LED header located on JS9 is used to display all SATA activity on the JS1-JS4 SATA ports (Marvell SATA controller). See the table on the right for pin definitions.

SATA LED Pin Definitions (JS9)

Pin #	Definition	Pin #	Definition
1	SATA1	6	NC
2	SATA2	7	NC
3	SATA3	8	NC
4	SATA4	9	NC
5	SATA LED Comm	10	Key

SATA LED (Intel)

The SATA LED header located on J37 is used to display all SATA activity on the J3 and J4 SATA ports (Intel SATA controller). See the table on the right for pin definitions.

Intel's SATA LED Pin Definitions (J37)

Pin Number	Definition
1	(I-)SATA1
2	(I-)SATA2
3	NC
4	NC
5	NC

5-10 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional set- tings. Jumpers create shorts be- tween two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

Note: On a two-pin jumper, "Closed" means the jumper is on both pins and "Open" means the jumper is either on only one pin or completely removed.

Connector Pins

Jumper Cap

Setting

3 2 1

3 2 1

Pin 1-2 short
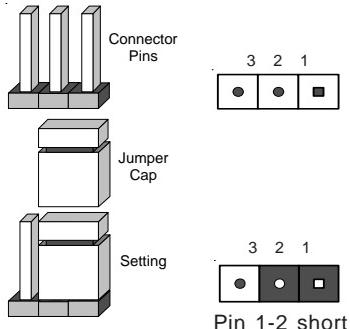
CMOS Clear

JBT1 is used to clear CMOS (which will also clear any passwords). Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To clear CMOS, 1) First unplug the power cord(s) 2) With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver 3) Remove the screwdriver (or shorting device) 4) Reconnect the power cord(s) and power on the system.

Note: *Do not use the PW_ON connector to clear CMOS.*

Front Side Bus Speed

JP1 and JP2 are used to set the sys- tem (front side) bus speed for the processors. It is best to keep these jumpers set to Auto. These jumpers are used together with the CPU Clock setting in BIOS. See the table on the right for jumper settings.

Front Side Bus Speed (JP1, JP2)

JP1	JP2	FSB Speed
Pins 1-2	Pins 1-2	Auto
Pins 2-3	Pins 2-3	100 MHz (x4)
NC	Pins 2-3	133 MHz (x4)
NC	NC	Reserved
Pins 2-3	NC	200 MHz (x4)

Note: NC stands for "No Connection".

USB Wake-Up

Use JPUSB1 to enable or disable USB Wake-Up, which allows you to wakeup the system by de-pressing a key on the keyboard or by clicking the mouse when either is connected to the USB1 or USB2 port. Enable the jumper to allow the system to be woken up from an S1 or S3 state in Windows OS. See the table on the right for jumper settings. This feature works with the USB1 and USB2 ports only.

**USB Wake-Up
Jumper Settings
(JPUSB1)**

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

Watch Dog Enable/Disable

JP8 enables controls the Watch Dog function, a system monitor that takes action when a software application freezes the system. Pins 1-2 will have WD reset the system if a program freezes. Pins 2-3 will generate a non-maskable interrupt for the program that has frozen. See the table on the right for jumper settings. Watch Dog must also be enabled in BIOS.

**Watch Dog
Jumper Settings (JP8)**

Jumper Position	Definition
Pins 1-2	WD to Reset
Pins 2-3	WD to NMI
Open	Disabled

Note: when Watch Dog is enabled, the user must write their own application software to disable the Watch Dog Timer.

Speaker Jumper

The speaker jumper is located on J18 and allows you to choose be-tween using the internal or exter-nal speakers. For the internal speaker, jump pins 3 and 4. To use an external speaker, place the speaker cable's header on all four pins See the table on the right.

**Speaker
Jumper Settings (J18)**

Pins	Definition
1 through 4	External Spkr
3 and 4	Internal Spkr

Keyboard Wake-Up

The JPWAKE jumper is used to allow the system to be woken up by depressing a key on the keyboard from an S1 or S3 state in Windows OS. See the table on the right for jumper settings. Your power supply must meet ATX specification 2.01 or higher and supply 720 mA of standby power to use this feature.

Keyboard Wake-Up Jumper Settings (JPWAKE)

Jumper Position	Definition
1-2	Disabled
2-3	Enabled

GLAN2 Enable/Disable

Change the setting of jumper JPL2 to enable or disable the onboard GLAN2 port on the motherboard. See the table on the right for jumper settings. The default setting is Enabled. (For LAN1, please change the setting in the BIOS.)

GLAN2 Enable/Disable Jumper Settings (JPL2)

Jumper Position	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

VGA Enable/Disable

J33 allows you to enable or disable the VGA port. The default position enabled. See the table on the right for jumper settings.

VGA Enable/Disable Jumper Settings (J33)

Jumper Position	Definition
1-2	Enabled
2-3	Disabled

Keylock Enable/Disable

The Keylock header is located at J36. Close the jumper to enable the Keylock function and leave the jumper open (off) to disable it. The default setting is open. See the table on the right for jumper settings.

Keylock Enable/Disable Jumper Settings (J36)

Jumper Position	Definition
On	Enabled
Off	Disabled

SATA Enable/Disable

JSP1 is used to enable or disable Marvell's Serial ATA Controller. See the table on right for pin definitions.

SATA Enable/Disable
Jumper Settings (JPS1)

Jumper Position	Definition
1-2	Enabled
2-3	Disabled

5-11 Onboard Indicators

Standby Power LED

The Standby Power LED indicator is designated LE2. When the Standby PWR LED is on, it indicates the system standby power is on.

5-12 Parallel Port, Floppy/IDE Hard Drive and AGP Connections

Use the following information to connect the floppy and hard disk drive cables.

• A floppy disk drive cable has seven twisted wires.

• A red mark on a wire typically designates the location of pin 1.

• A single floppy disk drive ribbon cable has 34 wires and two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.

• The 80-wire ATA100/66 IDE hard disk drive cable that came with your system has two connectors to support two drives. This special cable should be used to take advantage of the speed this new technology offers. The blue connector connects to the onboard IDE connector interface and the other connector(s) to your hard drive(s). Consult the documentation that came with your disk drive for details on actual jumper locations and settings for the hard disk drive.

Parallel Port Connector

The parallel port is located on J8. See the table on the right for pin definitions.

Parallel (Printer) Port Pin Definitions (J8)

Pin Number	Function	Pin Number	Function
1	Strobe-	2	Auto Feed-
3	Data Bit 0	4	Error-
5	Data Bit 1	6	Init-
7	Data Bit 2	8	SLCT IN-
9	Data Bit 3	10	GND
11	Data Bit 4	12	GND
13	Data Bit 5	14	GND
15	Data Bit 6	16	GND
17	Data Bit 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

Floppy Connector

The floppy connector is located on J7. See the table on the right for pin definitions.

Floppy Connector Pin Definitions (J7)

Pin Number	Function	Pin Number	Function
1	GND	2	FDHDIN
3	GND	4	Reserved
5	Key	6	FDEDIN
7	GND	8	Index-
9	GND	10	Motor Enable
11	GND	12	Drive Select B-
13	GND	14	Drive Select A-
15	GND	16	Motor Enable
17	GND	18	DIR-
19	GND	20	STEP-
21	GND	22	Write Data-
23	GND	24	Write Gate-
25	GND	26	Track 00-
27	GND	28	Write Protect-
29	GND	30	Read Data-
31	GND	32	Side 1 Select-
33	GND	34	Diskette

IDE Connectors

There are no jumpers to configure the onboard IDE interfaces J2 and J5. See the table on the right for pin definitions. You must use the ATA100/66 cable included with your system to benefit from the ATA100/66 technology.

IDE Connector Pin Definitions (J2, J5)

Pin Number	Function	Pin Number	Function
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	Key
21	DRQ3	22	GND
23	I/O Write-	24	GND
25	I/O Read-	26	GND
27	IOCHRDY	28	BALE
29	DACK3-	30	GND
31	IRQ14	32	IOCS16-
33	Addr 1	34	GND
35	Addr 0	36	Addr 2
37	Chip Select 0	38	Chip Select 1-
39	Activity	40	GND

1.5V 8xAGP Pro Slot

The P4SCT+II includes an 8xAGP Pro slot for high-performance video cards. It is backward compatible with 4xAGP and 2xAGP graphics cards.

To install a VGA card, power down the system and remove the I/O shield corre-sponding to the 8xAGP Pro slot. Push the AGP card down making sure that the golden tab does not show.   Finish by screwing the AGP card onto the motherboard.   Replace all chassis covers before restoring power to the system.

Figure 5-7. 8xAGP Pro Slot
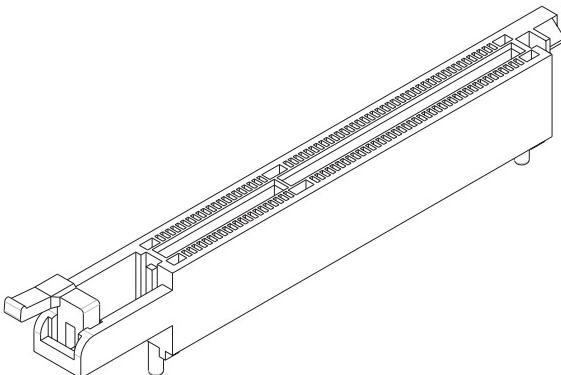
Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform simple maintenance on the SC733T-350 chassis. Following the component installation steps in the order given will eliminate most common problems. If some steps are unnecessary, skip ahead to the next step.

Tools Required
The only tool you will need is a Philips screwdriver.

6-1 Static-Sensitive Devices

Static electrical discharge can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from static discharge.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its anti-static bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard, add-on cards and peripherals back into their anti-static bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

Unpacking

The motherboard is shipped in antistatic packaging. When unpacking the board, make sure the person handling it is static protected.

6-2   Front Control Panel

The front control panel must be connected to the JF2 connector on the mother-
board to provide you with system status and alarm indications. A ribbon cable
has bundled these wires together to simplify this connection. <u>Connect the cable
from JF2 on the motherboard (making sure the red wire plugs into pin 1) to the
appropriate comnnector on the front control panel PCB (printed circuit board).</u>
Pull all excess cabling over to the control panel side of the chassis. The LEDs
inform you of system status - see Figure 6-1 for details. Figure 6-2 shows the
SC733T-350 features included on the front of the chassis. See Chapter 5 for
details on JF2.

Figure 6-1.   Front Control Panel LEDs

Power Indicates power is being supplied to the system.

HDD Indicates SATA hard disk/CD-ROM drive activity.

NIC Indicates network activity on either GLAN port.

Overheat Indicates an overheat condition in the chassis.

Figure 6-2. Chassis Front View

5.25" Drive Bays

Floppy Drive Bay

Main Power

System Reset

Front Side USB

System LEDs

SATA Active LED

Front Bezel Lock

SATA Drive Configuration
Drive IDs are marked on the
front bezel. From bottom
to top they are Drive 0,
Drive 1, Drive 2 and Drive 3
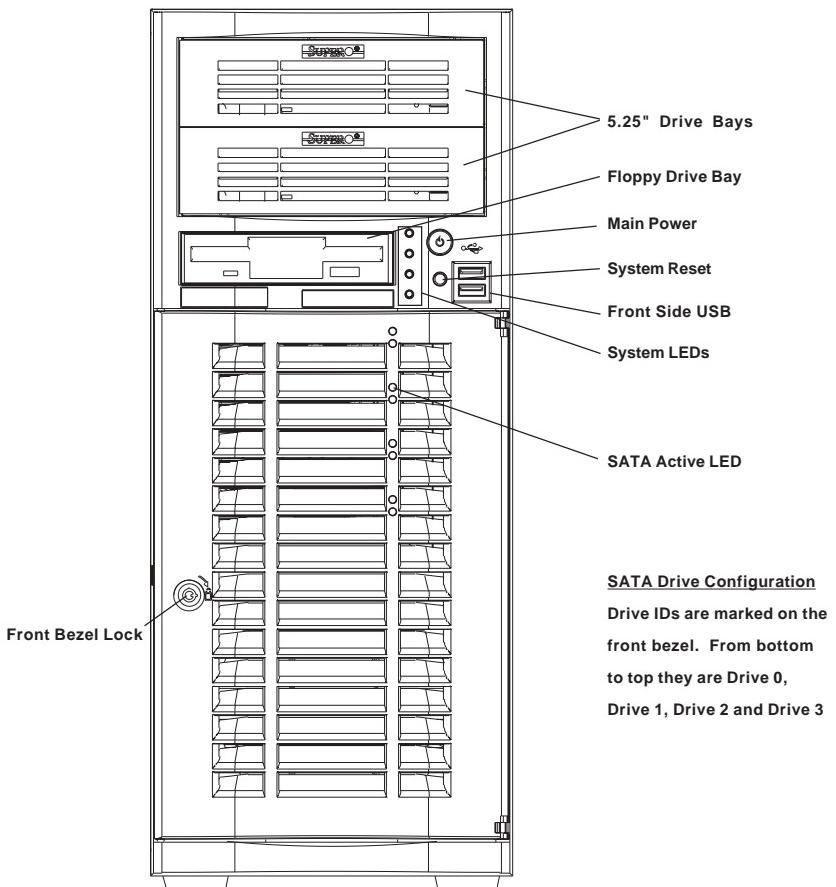
Figure 6-3. Chassis Rear View

Power Supply

Power Supply Fan

12-cm Exhaust Fan

IO Backplane

PCI Expansion Slots
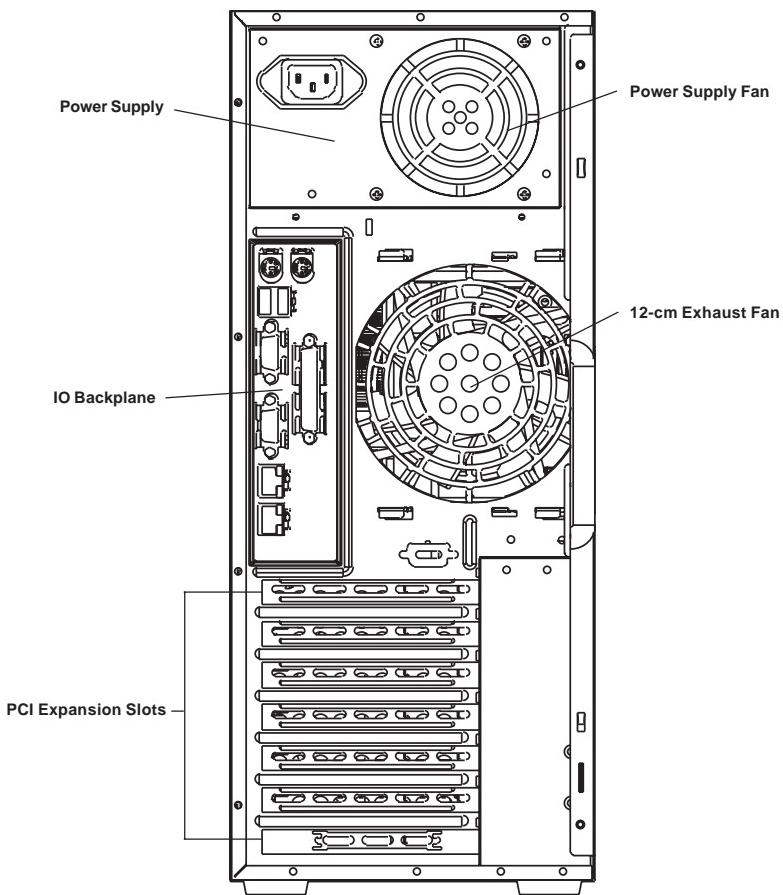
6-3 System Fans

A 9-cm chassis cooling fan housed in a fan duct is located just below the peripheral drive bays to provide cool air intake for the system. A 12-cm exhaust fan at the rear of the chassis pulls the cool air through the system and expels the hot air.

Fan Failure

Under normal operation, the chassis, the exhaust and the power supply fans all run continuously. If any of these three fans fail, the system must be powered down before replacing them.

Replacing System Fans

1. Identifying and accessing the fan
First, inspect the back of the chassis to see if it is the 12-cm fan that has failed. Power down the system and remove the left chassis cover by first removing the two screws from the back lip of the cover. Push in the release tab on the cover and push the cover toward the rear of the chassis until it stops (after moving about ½ inch). Then lift the cover out and away from the chassis. (See Figure 2-1 for accessing the inside of the chassis.)

2. Removing the fan duct assembly
9-cm fan: After removing the side chassis cover, release the clips that secure the fan duct to the chassis. You can then pull the fan duct out from its location in the chassis. Remove the four screws at the front of the fan duct that hold the fan in place. Then release the two fasteners along the side of the fan duct. You can now separate it into two pieces and easily remove the fan (see Figure 6-4). Add a new fan of the same type (see step 3).

The 12-cm exhaust fan is also in a housing that can be removed from the chassis after removing the left chassis cover (see Figure 6-5).

3. Installing a new fan
Replace the failed fan with an identical one (available from Supermicro). After the new fan has been installed into the fan duct, reassemble the fan duct and perform the removal procedure in reverse to install the entire fan duct assembly back into the chassis. Make sure the wiring for the fan is also reattached to its proper header. Finish by replacing the left chassis cover, then restore power to the system. Check that the replaced fan is working properly.

Figure 6-4. Removing the Fan Duct Assembly (9-cm Fan)
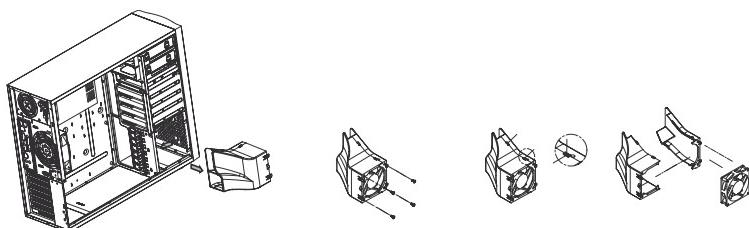
Figure 6-5. Removing the 12-cm Exhaust Fan
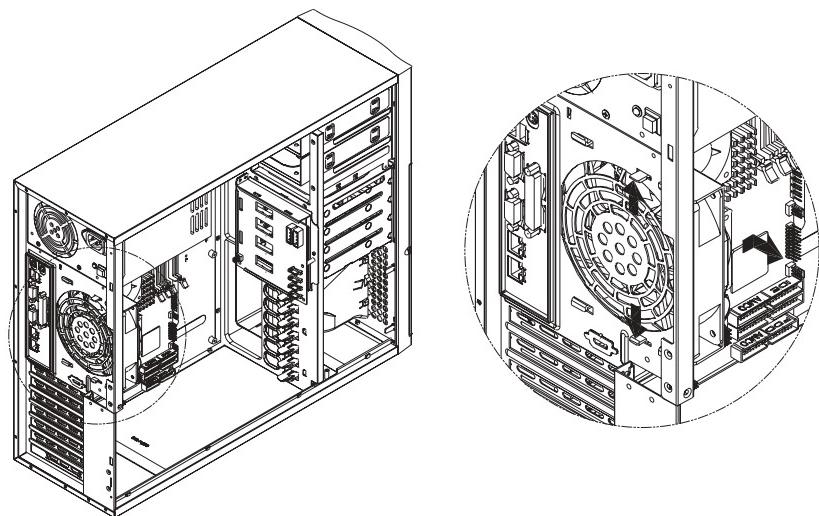
6-4 Drive Bay Installation

A bezel covers the front of the chassis but does not need to be removed to access the drives. If you wish to remove the bezel piece, push on the three tabs on the inside left side lip of the front chassis cover. Then slightly swing out the same (left) side of the cover - about ½ inch only. Remove by pushing on the open side of the cover to remove it from the chassis (do not try to swing or pull it straight out after opening the left side.

Serial ATA Drives

After unlocking the Serial ATA (SATA) drive bay door, swing it open to access the SATA drive. The drive IDs are preconfigured as 0 through 3 in order from bottom to top.

Important! Use extreme caution when working around the SATA backplane. Do not touch the backplane with any metal objects and make sure no ribbon cables touch the backplane or obstruct the airflow holes in the SATA backplane. Regardless of how many SATA hard drives are installed, all four SATA drive carriers must remain in the drive bays to promote proper airflow.

1.   Installing/removing hot-plug SATA drives:
The four SATA drive carriers are all easily accessible at the front of the chassis. These SATA drives are hot-pluggable, meaning they can be removed and installed without powering down the system. To remove a carrier, first open the front bezel then push the release button located beside the drive LEDs. Swing the colored handle fully out and use it to pull the unit straight out (see Figure 6-6).

Note: Your operating system must have RAID support to enable the hot-plug capability of the SATA drives.

2.   Mounting an SATA drive in a drive carrier:

The SATA drives are mounted in drive carriers to simplify their installation and removal from the chassis.   These carriers also work to promote proper airflow for the system.   For this reason, even carriers without SATA drives must remain in the server.   If you need to add a new SATA drive, insert the drive into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier. Secure the drive to the carrier with four screws.

Figure 6-6. Removing an SATA Drive Carrier
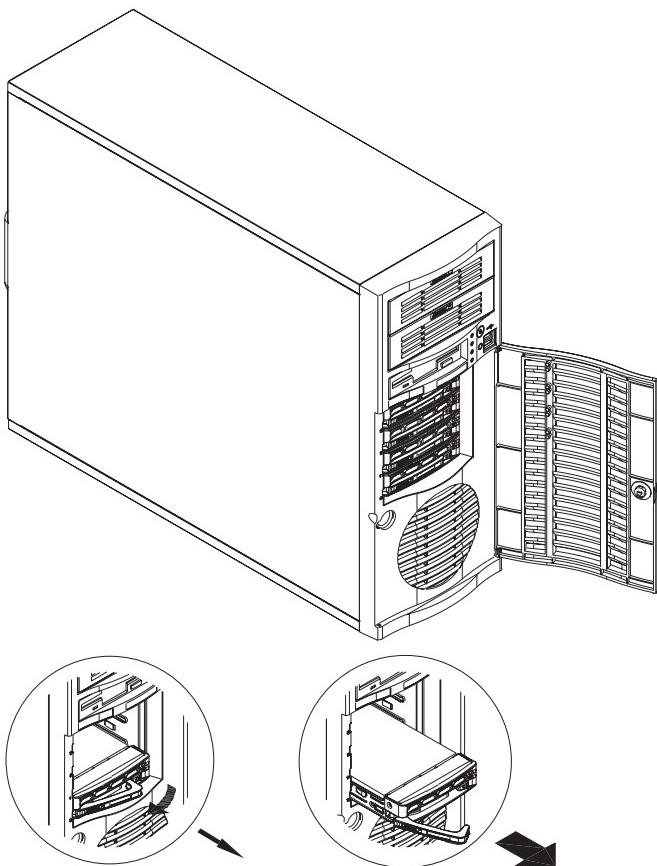
3.   SATA backplane:

All four SATA drives plug into the SATA backplane. There are two jumpers and two headers on the SATA backplane, as noted below. A ribbon cable from JA1 on the motherboard should be connected to the JP26 connector on the SATA backplane. There are also two power connectors on the backplane - both should be connected. See Figure 6-7 for the locations of backplane connectors - the reverse side of the backplane has four channel connectors that the SATA drives plug into when inserted with a SATA drive carrier. See Figure 6-2 for drive number configuration. You cannot cascade the SATA backplane.

Jumper	Description	Setting
JP18	Buzzer Reset	Alarm Reset Header
JP25	OH Temperature	Open: 45 degrees C
		Pins 1-2: 50 degrees C (default)
		Pins 2-3: 55 degrees C
JP26	SATA Drive Activity	Drive Activity
JP28	Fan Sense	Pins 1-2: Enable
		Pins 2-3: Disable (default)

Figure 6-7. SATA733 Backplane
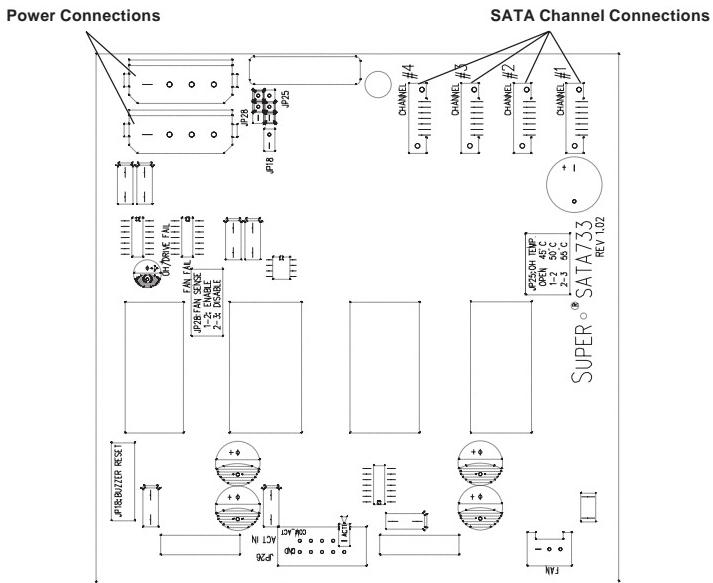
Installing Components in the 5.25" Drive Bays

1.   Drive bay configuration
The 5033C-T has two 5.25" drive bays above the SATA drive bays. Compo-
nents such as a floppy drive, IDE hard drives or CD-ROM drives can be
installed in these 5.25" drive bays.

2.   Mounting components in the drive bays
First power down the system and then remove the top/left chassis cover
to access the drive components. With the cover off, remove the two or
four screws that secure the drive carrier to the chassis (one side only)
then push the entire empty drive carrier out from the back.

Adding a CD-ROM drive: remove the guide plate from right side of the
empty drive carrier and screw it into the right side of the CD-ROM drive
using the holes provided (see Figure 6-8). Then slide the CD-ROM into the
bay and secure it to the chassis with the drive carrier screws you first
removed. Attach the power and data cables to the drive. Replace the top/left
chassis cover before restoring power to the system.

Adding an IDE or floppy drive: to add one of these drives, install it into one of
the removed empty drive carriers with the printed circuit board side toward the
carrier so that the drive's mounting holes align with those in the carrier.
Secure the drive to the carrier with four screws then slide the assembly into
the bay and secure it to the chassis with the drive carrier screws you first
removed. Attach the power and data cables to the drive. Replace the top/left
chassis cover before restoring power to the system.

Note: A red wire typically designates the location of pin 1. You should keep
the drive carriers inserted in any unused drive bays to reduce EMI and noise
and to facilitate the airflow inside the chassis.

Figure 6-8. Adding a Component Without a Drive Carrier
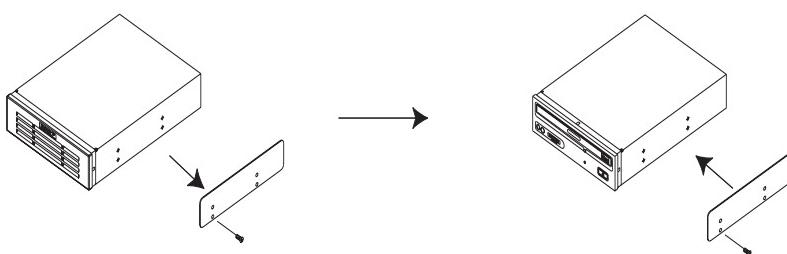
6-5 Power Supply

The 5033C-T has a single 350W power supply that features noise-suppression technology for silent operation. The power supply has the capability to automatically sense and operate at 100 or 240V AC. This power supply also has the PFC (Power Factor Correction) feature built in.

Replacing the Power Supply

1. Accessing the power supply:
After powering down the system, you'll need to remove the left chassis cover to access the power supply for removal.

2. Removing the power supply:
First, unplug the power cord from the power supply. Then remove the power supply connectors going to the motherboard and the SATA backplane. Finally, remove the screws that secure the unit to the mounting brackets in the chassis and then pull the unit completely out.

3. Installing a new power supply module:
Replace the failed unit with another unit having the exact same part number (PWS-0059). Gently but firmly push the new unit all the way into the open bay. Secure it to the mounting brackets in the chassis with the screws provided. Connect two power cables to the SATA backplane and two to the motherboard (ATX PWR CONN and J21 connectors). Finish by replacing the chassis left cover and then restoring power to the system.

Notes

Chapter 7
BIOS

7-1   Introduction

This chapter describes the AwardBIOS for the P4SCT+II. The Award ROM BIOS is stored in a Flash chip and can be easily upgraded using a floppy disk-based program.

Note: Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Refer to the Manual Download area of our web site for any changes to BIOS that are not reflected in this manual.

System BIOS

The BIOS is the Basic Input Output System used in all IBM® PC, XT™, AT®, and PS/2® compatible computers. The AwardBIOS Flash chip stores the system parameters, such as amount of memory, type of disk drives and video displays, etc. CMOS requires very little power. When the computer is turned off, a back-up battery provides power to the BIOS Flash chip, enabling it to retain the system parameters. Each time the computer is powered-on, the computer is then con-figured with the values stored in the BIOS ROM by the system BIOS, which gains control when the computer is powered on.

How To Change the Configuration Data

The CMOS information that determines the system parameters may be changed by entering the BIOS Setup utility. This Setup utility can be accessed by press-ing <Del> at the appropriate time during system boot.

Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the BIOS Setup utility. From the main menu, you can access the other setup screens, such as the Chipset and Power menus. Section 4-3 gives detailed descriptions of each parameter setting in the Setup utility.

7-2   Running Setup

Optimal default settings are in bold text unless otherwise noted.

The BIOS setup options described in this section are selected by choosing the appropriate text from the Main BIOS Setup screen. All displayed text is described in this section, although the screen display is often all you need to understand how to set the options (see on next page).

When you first power on the computer, the AwardBIOS™ is immediately activated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

1.   By pressing <Del> immediately after turning the system on, or

2.   When the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test), press the <Del> key to activate the Main Setup Menu.

Press DEL to enter SETUP

7-3   Main BIOS Setup

All Main Setup options are described in this section. The Main BIOS Setup screen is displayed below.

Use the <Up> <Down> arrow keys or the <Tab> key to move among the different settings in the above menu.

Press the <Esc> key to exit the CMOS Setup Menu and use the <Left> <Right> arrow keys to enter the other categories of BIOS settings. The next section is described in detail to illustrate how to navigate through the menus.

Main BIOS Setup Menu
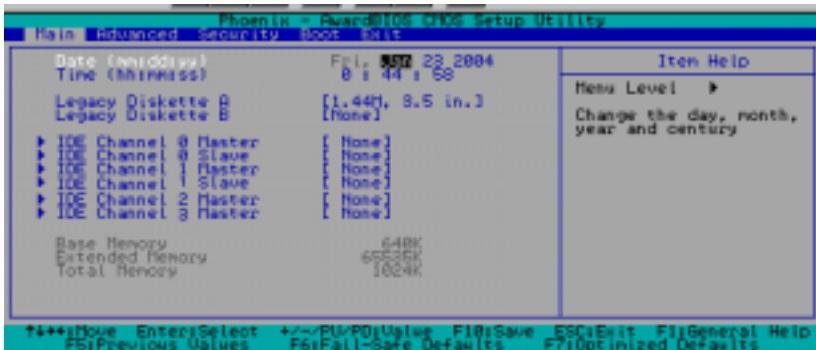
Date/Time

Set the system date and time. Key in the correct information in the "mm", "dd" and "yy" fields. Press the "Enter" key to save the data.

Legacy Diskette A

This setting allows the user to set the type of floppy disk drive installed as diskette A. The options are "None", "360Kb, 5.25 in", "1.2MB, 5.25 in", "720Kb, 3.5 in", **"1.44 MB, 3.5 in"**, and "2.88MB 3.5 in".

Legacy Diskette B

This setting allows the user to set the type of floppy disk drive installed as diskette B. The options are **"None"**, "360Kb, 5.25 in", "1.2MB, 5.25 in", "720Kb, 3.5 in", "1.44 MB, 3.5 in", and "2.88MB 3.5 in".

▶IDE Channel 0 Master/Slave, IDE Channel 1 Master/Slave, IDE Channel 2 Master, IDE Channel 3 Master

These settings allow the user to set the parameters of the IDE Channel 0 Master/Slave, IDE Channel 1 Master/Slave, IDE Channel 1 Master/Slave, IDE Channel 2 Master, IDE Channel 3 Master slots. Hit <Enter> to activate the sub-menu screen for detailed options of these items. Set the correct configurations accordingly.

IDE HDD Auto-Detection

This option allows the user to determine the manner in which the AwardBIOS sets the settings for the IDE Primary Master Device. The options are "None", "**Auto**" and "Manual."

IDE Channel 0 Master/Slave, IDE Channel 1 Master/Slave, IDE Channel 2 Master, IDE Channel 3 Master

Press the <Auto> key to activate the function of 'IDE HDD Auto-Detection", which will allow the BIOS to automatically detect the status of the IDE HDD installed in the system, such as the size, the number of cylinders, the configurations of items such as Head, Precomp, Landing Zone and Sector. The options are "None", "**Auto**", and "Manual."

Access Mode

This item determines the location through which the AwardBIOS accesses the IDE Primary Master Device. The settings are "CHS", "LBA", "Large", and "**Auto**".

Base Memory/Extended Memory/Total Memory

These are displays that inform you how much of each type of memory is recognized as being present in the system.

7-4 Advanced BIOS Setup

Choose Advanced BIOS Setup from the Award BIOS main menu with the Left/
Right arrow keys.   You should see the following display. Select one of the
items in the left frame of the screen to go to the sub screen for that item.
Advanced BIOS Setup options are displayed by highlighting the option using
the arrow keys. All Advanced BIOS Setup options are described in this
section.
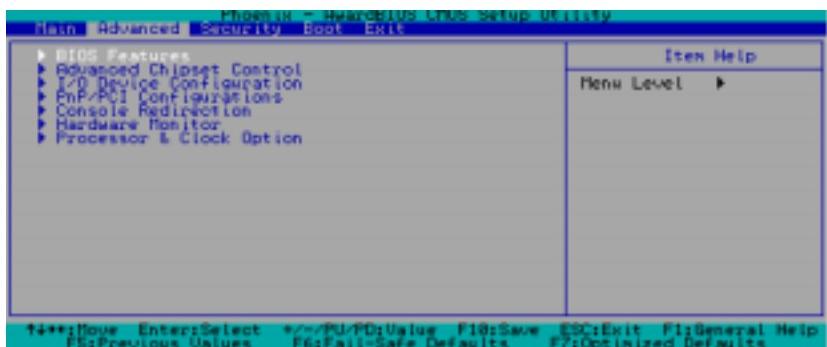
7-4.1   Advanced BIOS Features

When the item of Advanced BIOS Features is highlighted, press the <Enter>
key to activate the screen below:

Quick Boot

If enabled, this feature allows the system to skip certain tests while booting.
This will decrease the time needed to boot the system. The settings are
"**Enabled**" and "Disabled".

Quiet Boot

This feature allows the user to activate the function of "Quiet Boot". The
options are: "**Enabled**" and "Disabled".

ACPI Function

Select "Enabled" to activate the function of BIOS Support for Advanced Configuration and Power Interface features. The settings are "**Enabled**" or "Disabled".

ACPI Suspend Type

If enabled, the option allows the user to determine the ACPI Suspend type. The options are **"S1(POS)"**, "S3(STR)", and S1&S3.

APIC Mode

This setting allows you to **Enable** or Disable APIC. APIC is used to assign interrupt signals to a specific processor on multi-processor system and provides IRQs beyond the conventional 16 under Windows 2000 or XP. It has no effect on single processor systems.

MPS Version Control

This setting allows you to state the MPS version for your operating system. Options are "1.1" and "**1.4**".

PWRON After PWR-Fail

This setting allows the user to specify how the system will respond when power is reapplied after the system has gone down due to a power failure. The options are "**Off**", "On" and "Former-Sts (Former Status)".

7-4.2 Advanced Chipset Control

Access the submenu to make changes to the following settings.

ECC Configuration

This setting allows you to enable or disable ECC (Error Correction and Checking). The options are **"ECC"** and "Non-ECC".

CSA LAN (Giga-LAN)

Select "Enabled" to activate the function of CSA LAN. The options are **"Enabled"** and "Disabled".

Smart Fan Control

Select "Enabled" to enable the function of Smart Fan Control. The options are **"Disabled"** and "Enabled".

SATA Mode

This setting allows you to set the SATA Mode RAID via BIOS. The options are **"RAID"** and "IDE".

On-Chip Serial ATA

This setting allows you to configure On-Chip Chipset Configurations. Select "Disabled" to disable SATA controller. If "Auto" is selected, BIOS will automatically configure the settings for SATA controller. Select "Combined Mode" to combine the functionality of Parallel ATA (PATA) and Serial ATA(SATA) (* with the maximum of two IDE drives available for each channel.) If "Enhanced Mode" is selected, both SATA and PATA are supported (*with the maximum of 6 IDE drives available.) If "SATA Only" is selected, SATA will operate in the Legacy Mode. The options are Disabled, **Auto,** Combined Mode, Enhanced Mode, and SATA only.

Serial ATA Port0/1 mode

This setting allows you to configure Serial ATA Port0/1 modes. The options are **Primary Master**, Primary Slave, Secondary Master, Secondary Slave, SATA0 Master and SATA1 Master.

USB Controller

This setting allows you to enable or disable the USB Controller. The options are **Enabled**, and Disabled.

USB 2.0 Controller

This setting allows you to enable or disable USB 2.0 (EHCI) Controller. The options are **Enabled**, and Disabled.

USB Legacy Support

This setting allows you to enable or disable the functions of USB, Keyboard/ Mouse under POST and DOS. The options are **Disabled**, and Enabled.

CPU THRM-Throttling

THRM throttling is used to lower power consumption and reduce the heat generated by the CPU. The options for this setting are "87.5%", **"75%"**, "62.5%", "50%", "37.5%", "25%' and "12.5%".

7-4.3 I/O Device Configuration

Choose I/O Device Configuration from the Award BIOS main menu with the Left/Right arrow keys. You should see the following display:
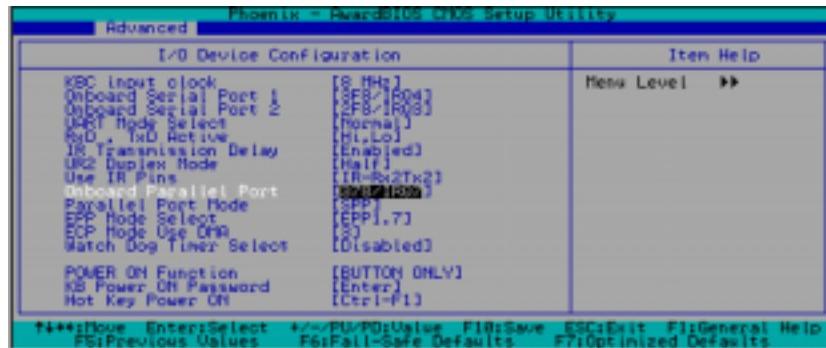
Keyboard Input Clock

This setting allows to you set the speed of the keyboard. The options are 6 MHz, **8 MHz,** 12 MHz, and 16 MHz.

Onboard Serial Port1/Onboard Serial Port2

This setting allows the user to set the address and the corresponding IRQ for the Serial Port1 and Serial Port 2.   The options are "Disabled" , "3F8/ IRQ4", "2F8/IRQ3", "3E8/IRQ4", "2E8/IRQ3", and "Auto". The default setting for Serial Port1 is "**3F8/IRQ4**" and the default for Port 2 is "**2F8/IRQ3**".

UART Mode Select

This setting allows the user to select the UART mode for the BIOS. The options are "IrDA", "ASKIR" and "**Normal**".

RxD, TxD Active

This allows the user to change the settings for the "RxD, TxD Active" function. The options are "Hi, Hi", "**Hi, Lo**", "Lo, Hi", and "Lo, Lo".

IR Transmission Delay

If "Enabled", the transmission of IR (infrared) signals will be delayed. The options are "**Enabled**" and "Disabled".

UR2 Duplex Mode

This setting set the mode for the UR2 Duplex Mode. The options are "Full" and "**Half**".

Use IR Pins

This item sets the usage of the IR pins. The options are "RxD2, TxD2" and "**IR-Rx2Tx2**".

Onboard Parallel Port

This setting allows the user to set the address and the corresponding IRQ for the onboard parallel port. The options are "Disabled", "**378/IRQ7**", "278/IRQ5" and "3BC/IRQ7".

Parallel Port Mode

This setting sets the mode for the onboard Parallel port. The options are "**SPP**," "EPP", "ECP" "ECP+EPP" and "Normal".

EPP Mode Select

This setting allows the user to select the EPP port type. The options are "EPP 1.9" and "**EPP 1.7**".

ECP Mode Use DMA

This setting allows the user to select the DMA channel for the ECP mode (port) to use. The options are "1" and "**3**".

Watch Dog Timer Select

This setting allows you to select the setting for the Watch Dog Timer. The Options are "**Disabled**", "10 Sec", "20 Sec", "30 Sec", "40 Sec", "I min", "2 min",and "4 min".

Power On Function

This setting allows the user to decide which method to use to power on the system. The options are "Password", "Hot Key", "Mouse Left", "Mouse Right", "Any Key", and "**Button Only**".

KB Power On Password

This setting allows the user to enter the Password when the system is powered on via keyboard.

Hot Key Power On

This setting allows the user to decide which hot-keys to use in order to power on the system. The options are "**Ctrl-F1**", "Ctrl-F2, Ctrl-F3", "Ctrl-F4", "Ctrl-F5", "Ctrl-F6", "Ctrl-F7", "Ctrl-F8", "Ctrl-F9", "Ctrl-F10", "Ctrl-F11" and "Ctrl-F8".

7-4.4 PnP Configuration

Choose PCI/PnP Configurations from the Award BIOS main menu with the Left/Right arrow keys. You should see the following display:
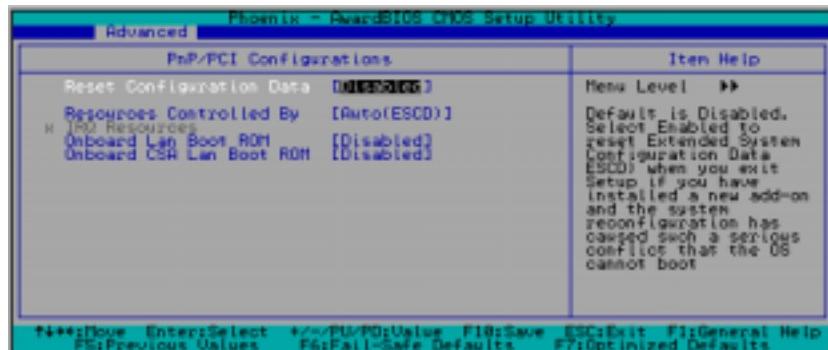
Reset Configuration Data

Enabling this setting resets the extended system configuration data when you exit setup. Do this when you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot reboot the system. The options are "Enabled" and "**Disabled**".

Resources Controlled By

This setting allows BIOS to automatically configure all boot and Plug and Play compatible devices. If you choose Auto, you cannot select the IRQ, DMA and memory base address fields because BIOS automatically assigns them. The options are "**Auto <ESCD>**" and "Manual".

Onboard CSA LAN Boot

Select "Enabled" to enable the Boot ROM embedded in the Onboard CSA LAN Chip. The options are: "Enabled" and "**Disabled**".

7-4.5 Console Redirection

Choose Console Redirection from the Award BIOS main menu with the Left/ Right arrow keys. You should see the following display:
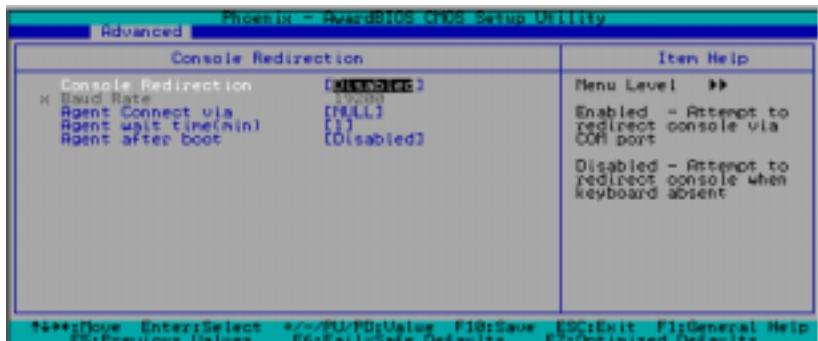
Console Redirection

Select "Enabled" to redirect Console via COM Port. Select "Disabled" to redirect Console when the keyboard is absent. The options are: "Enabled" and "**Disabled**".

Agent Connect Via

This feature allows the user to set the connection mode for Console Redirection. When "Null" is entered, Console Redirection will be set to direct connection.

Agent Wait Time

This feature allows the user to set the timeout for the connection. The options are "1 (Min)", "**2 (Min)**", "4 (Min)" and "8 (Min)".

Agent after Boot

Select "Disabled" to allows the Agent of Console Redirection to continue running after OS bootup. The Options are "Enabled", and "**Disabled**".

7-4.6   Hardware Monitor

Choose Hardware Monitor from the Award BIOS main menu with the Left/Right arrow keys. You should see the following display:
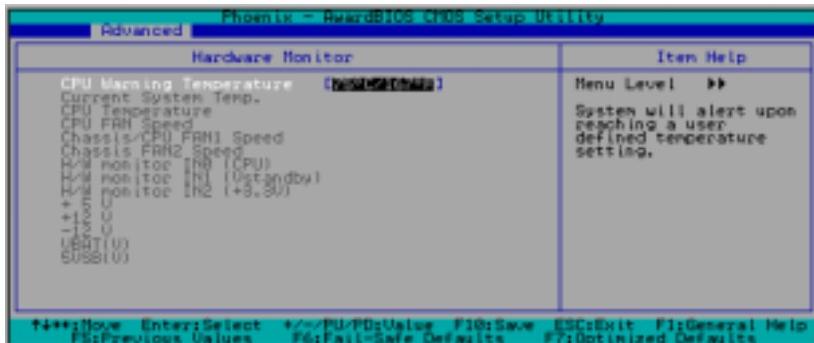
CPU Warning Temperature

This allows you to set the CPU warning temperature. If the CPU temperature reaches this threshold, an alarm will activate and a warning message will be displayed onscreen. The options are "Disabled", "60^0 C/140^0 F", "65^0 C/149^0 F", "70^0 C/158^0 F", "**75^0 C/167^0 F**", "80^0 C/176^0 F" and "85^0 C/185^0 F".

7-4.7 Processor & Clock Options
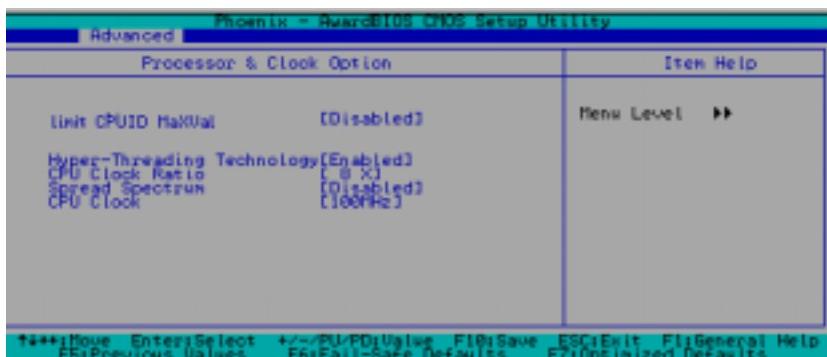
Limit CPUID MaxVal

This feature allows the user to set the limit for the CPUID Maximum Value. The value can be set from 1 to 3. The options are "Enabled" and **"Disabled"**. (*For Windows XP, the option should be set to "Disabled.")

Hyper-Threading Technology

Select "Enabled" to activate the hyper-threading function of the CPUs to make each CPU appear as if there were two CPUs to any programs that support it (you must have OS support also). The settings are "Disabled" and "**Enabled**."

CPU Clock Ratio

Key in a number between 8x to 50x to set the clock ratio of the processor. The default setting is **8x.** (*8x is only available for retail CPUs.)

Spread Spectrum

Spread Spectrum is a technique used to stablize a system by reducing the level of ElectroMagnetic Interference. The options are "Enabled" and "**Disabled**".

CPU Clock

Key in a number between 100 and 233 to set the CPU clock (MHz). Supermicro does not recommend or make any guarantees with CPU overclocking. The default setting is **"200 MHz"**.

7-5   Security

Choose Security from the Award BIOS main menu with the Left/Right arrow keys. You should see the following display:
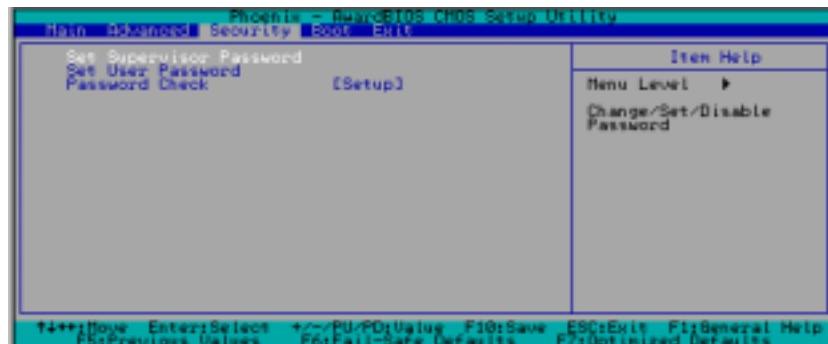
Set Supervisor Password

When the item "Set Supervisor Password" is highlighted on the above screen, press the <Enter> key. When prompted, type the Supervisor Password in the dialogue box to set or to change the Supervisor Password.

Set User Password

When the item "Set User Password" is highlighted on the above screen, press the <Enter> key. When prompted, type the User Password in the dialogue box to set or to change the User Password.

Password Check

This setting allows the user to determine if the password is required every time when the system boots up or if the password is required only when you enter the CMOS setup. The options are "System" and "**Setup**".

7-6 Boot

Choose Boot from the Award BIOS main menu with the Left/Right arrow keys.
You should see the following display:
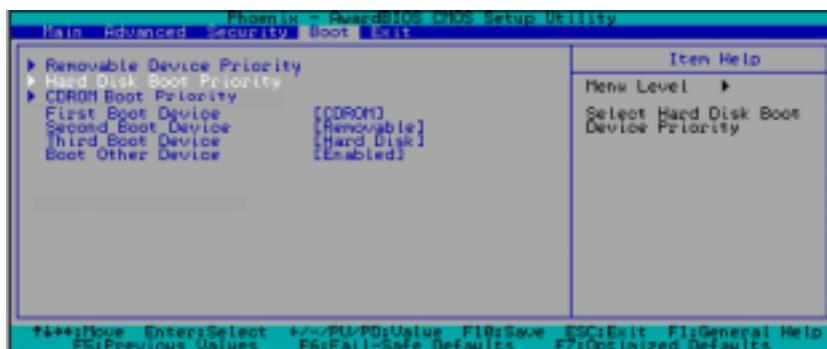
▶Removable Device Priority

This setting allows you to set the priority of removable devices. The options
are **"Floppy Disks"**, "LS120", "Zip 100", "USB-FDD0", "USB-FDD1", "USB-
ZIP0", and "USB-ZIP1".

▶ CD ROM Drives Boot Priority

This item allows the user to specify the boot sequence of the available CD
ROM Devices.

▶ Hard Disk Boot Priority

This item allows the user to select the Boot Priority of the following Hard
Disk Devices.

First Boot Device

This item allows the user to set the first boot-up device. The options are
"Removable", "Hard Disks", "**CDROM**", "Legacy LAN", and "Disabled".

Second Boot Device

This item allows the user to set the second boot-up device. The options are **"Removable"**, "Hard Disks", "CDROM", "Legacy LAN", and "Disabled".

Third Boot Device

This item allows the user to set the Third boot-up device. The options are "Removable", "**Hard Disks**", "CDROM", "Legacy LAN", and "Disabled".

Boot Other Device

If enabled, this option enables the BIOS to load the OS from another device rather than the ones that have been specified as the first, second and third boot up devices. The settings are "**Enabled**" and "Disabled".

7-7 Exit

Choose Exit from the Award BIOS main menu with the Left/Right arrow keys. You should see the following display:

Save & Exit Setup

When the item "Save & Exit Setup" is highlighted, press <Enter> to save the changes you've made in the BIOS program (CMOS) and exit. Your system should, then, continue with the boot-up procedure.

Exit without Saving

When the item "Exit without Saving" is highlighted, press <Enter> to exit the Setup routine without saving any changes you may have made. Your system should then continue with the boot-up procedure.

Load Fail-Safe Defaults

Highlight this item and hit <Enter> to load the default settings for all items in the BIOS Setup. These are the safest settings to use.

Load Optimized Defaults

Highlight this item and hit <Enter> to load the optimized settings for all items in the BIOS Setup. These settings provide you with optimal system performance.

Discard Changes

When the item "Discard Changes" is highlighted, press <Enter> to discard any changes you made to the BIOS settings and to stay in BIOS Setup. Your system should then continue with the boot-up procedure.

Appendix A
BIOS POST Messages

During the Power-On Self-Test (POST), the BIOS will check for problems. If a problem is found, the BIOS will activate an alarm or display a message. The following is a list of such BIOS messages.

Beeps	Error Message
1 long beep	Memory Modules Errors
1 long beep+2 short beeps	VGA Errors

Notes

Appendix B
BIOS POST Codes

This section lists the POST (Power On Self Testing) Codes for the Award BIOS.

POST (hex)	Description
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	● Disable PS/2 mouse interface (optional). ● Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). ● Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.

POST (hex)   **Description**

POST (hex)	Description
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial Early_Init_Onboard_Generator switch.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.
1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved

23h	1. Check validity of RTC value:
	         e.g. a value of 5Ah is an invalid value for RTC minute.
	2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
	3. Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
	4. Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots.
	5. Early PCI initialization:
	     -Enumerate PCI bus number
	     -Assign memory & I/O resource
	     -Search for a valid VGA device & VGA BIOS, and put it
	       into C000:0.

24h	Reserved
25h	Reserved
26h	Reserved
27h	Initialize INT 09 buffer
28h	Reserved
29h	● Program CPU internal MTRR (P6 & PII) for 0-640K memory address. ● Initialize the APIC for Pentium class CPU. ● Program early chipset according to CMOS setup. Example: onboard IDE controller. ● Measure CPU speed. ● Invoke video BIOS.
2Ah	Reserved
2Bh	Reserved
2Ch	Reserved

POST (hex)	Description
2Dh	1. Initialize multi-language 2. Put information on screen display, including Award title, CPU type, CPU speed ….
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard except Winbond 977 series Super I/O chips.
34h	Reserved
35h	Reserved
36h	Reserved
37h	Reserved
38h	Reserved
39h	Reserved
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot
48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program writes allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Reserved
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.

POST (hex)   **Description**

POST (hex)	Description
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO switch. 2. Initialize Init_Onboard_AUDIO switch.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reserved
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved

73h	(Optional Feature)
	Enter AWDFLASH.EXE if :
	    -AWDFLASH is found in floppy drive.
	    -ALT+F2 is pressed

74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..
76h	Reserved
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Reserved
7Dh	Reserved
7Eh	Reserved

7Fh	1. Switch back to text mode if full screen logo is supported.
	   -If errors occur, report errors & wait for keys
	   -If no errors occur or F1 key is pressed to continue:
	    ◆Clear EPA or customization logo.

POST (hex)   **Description**

POST (hex)	Description
80h	Reserved
81h	Reserved
82h	1. Call chipset power management hook. 2. Recover the text font used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. NET PC: Build SYSID structure 3. Switch screen back to text mode 4. Set up ACPI table at top of memory. 5. Invoke ISA adapter ROMs 6. Assign IRQs to PCI devices 7. Initialize APM 8. Clear noise of IRQs.
86h	Reserved
87h	Reserved
88h	Reserved
89h	Reserved
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	1. Enable L2 cache 2. Program boot up speed 3. Chipset final initialization. 4. Power management final initialization 5. Clear screen & display summary table 6. Program K6 write allocation 7. Program P6 class write combining
95h	1. Program daylight saving 2. Update keyboard LED & typematic rate
96h	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)

Notes

Appendix C

Software Installation

After all the hardware has been installed, you must first configure the Adaptec Embedded Serial ATA RAID driver before you install the operating system. The necessary drivers are all included on the Supermicro bootable CDs that came packaged with your motherboard.

C-1   Introduction to Serial ATA

Serial ATA (SATA)

Serial ATA (SATA) is a physical storage interface. It uses a single cable with a minimum of four wires to create a point-to-point connection between devices. It is a serial link which supports transfer rates from 150 MB/s. Because the serial cables used in SATA are thinner than the traditional cables used in Parallel ATA (PATA), SATA systems can be installed in smaller chassis than PATA. In addition, PATA cables can only extend to 40cm, while SATA cables can extend up to one meter. Overall, SATA provides better functionality than PATA.

Intel 6300ESB I/O Controller Hub

Located in the South Bridge of Intel's 875 chipset, the 6300ESB I/O Controller Hub provides the I/O subsystem with access to the rest of the system. In addition to supporting a dual-channel Ultra ATA/100 Bus Master IDE controller (PATA), the 6300ESB also supports two SATA host controllers, which provides support for up to two SATA ports and up to two RAID drives. The 6300ESB supports the PATA and SATA device configurations listed below.

ATA Operating Modes

You can select from the following two modes: Combined Mode and Enhanced Mode.

Combined Mode

In this mode, system BIOS assigns the traditional IRQ 14 and IRQ 15 for HDD use. Up to four ATA devices are supported by this mode.

Within the Combined Mode, the following three modes are supported:

Non-Combined Mode: Parallel ATA only, with a maximum of four devices supported.

Non-Combined Mode: SATA only, with a maximum of two devices supported.

Combined Mode: SATA and PATA devices, with support for two devices of each for a total of four devices maximum. For IDE(PATA)/SATA configurations, please refer to the table below.

Primary Master(=PM)	Yes	Yes	No	No	No	No
Primary Slave(=PS)	Yes	No	Yes	No	No	No
Secondary Master(=SM)	Yes	No	No	Yes	No	No
Secondary Slave(=SS)	Yes	No	No	No	Yes	No
SATA Port0	No	SM	SM	PM	PM	PM
SATA Port1	No	SS	SS	PS	PS	PS
*Note: (No=Not Present, Yes=Present) Also, if Logical Primary is selected, the IDE channels are no longer available.						

Enhanced Mode

In this mode, system BIOS will automatically search for all available IRQs for HDD use. For newer operating systems that support Enhanced Mode (such as WindowsXP, Windows2000 and Windows2003), you can set SATA and PATA to the Enhanced Mode. (These newer operating systems can accommodate both En-hanced and Combined Modes and support up to six ATA devices.)

Please refer to "Advanced Chipset Control" under the "Advanced" setup section in BIOS to select Combined Mode or Enhanced Mode.

C-2   Intel Hance Rapids Driver Installation

a. Insert Supermicro's bootable CD that came with the system into the CD drive and restart the system. Upon reboot, a screen entitled "Super Micro Driver Diskette Maker" will appear.

b. Choose from the list the item: "Intel Hance Rapids Driver by 3rd Party (Adaptec)" and press <Enter>.

c. On the next screen displayed, choose the OS driver you want to install and press <Enter>.

d. Insert a formatted diskette into floppy (A drive) and press <Enter> as prompted.

e. Exit the program after the process is completed. Then, reboot the system.

f. Insert a Microsoft Windows OS Setup CD in the CD Driver, and the system will start to boot up from the CD.

g. Press the <F6> key when the message-"Press F6 if you need to install a third party SCSI or RAID driver" displays.

h. When the Windows OS Setup screen appears, press "S" to specify additional device(s).

i. Insert the driver diskette named "Adaptec Embedded Serial ATA Raid Controller Driver" into drive A: and press the <Enter> key.

j. Choose **Adaptec Embedded Host Serial ATA Raid Controller** from the list indicated in the Windows OS Setup Screen, and press the <Enter> key.

k. Press the <Enter> key to continue the installation process. (If you need to specify any additional devices to be installed, do so at this time.) Once all devices are specified, press the <Enter> key to continue with the installation.

l. From the Windows OS Setup screen, press the <Enter> key. The OS Setup will automatically load all device files and then continue the Windows OS installation.

m. After the Windows OS Installation is completed, the system will automatically reboot.

C-3   Other Software Programs and Drivers

After you've installed Windows Operating System, the screen shown below will appear. You are now ready to install the additional software programs and drivers included on the CD. To install these software programs and drivers, click the icons to the right of these items.
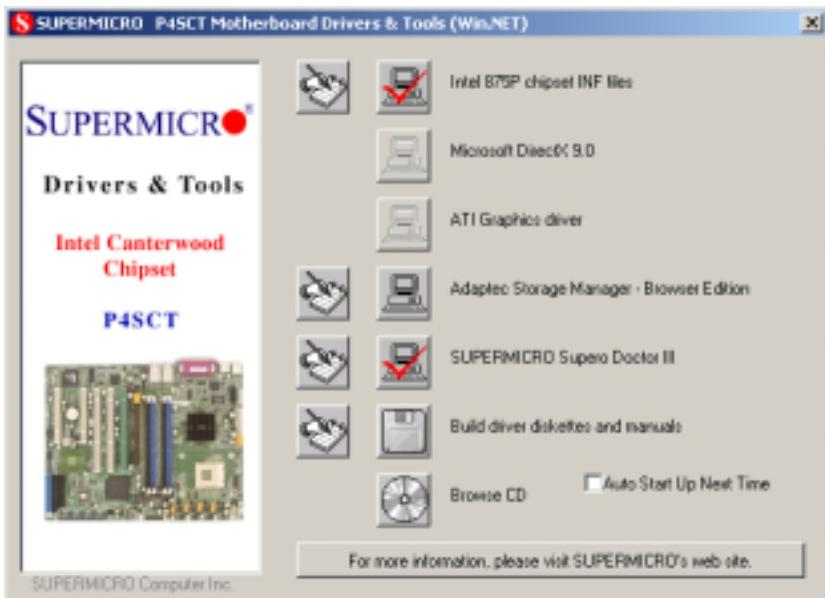
Figure C-1.   Driver/Tool Installation Screen

You may also click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** You should install everything here except for the SUPER Doctor utility, which is optional.   The bottom icon with a CD on it allows you to view the entire contents of the CD.

Supero Doctor III

The Supero Doctor III program is a Web base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called SD III Client. The Supero Doctor III program included on the CDROM that came with your motherboard allows you to monitor the environment and operations of your system. Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the Supero Doctor III interface.

Figure C-2. Supero Doctor III Interface Display (Health Information)
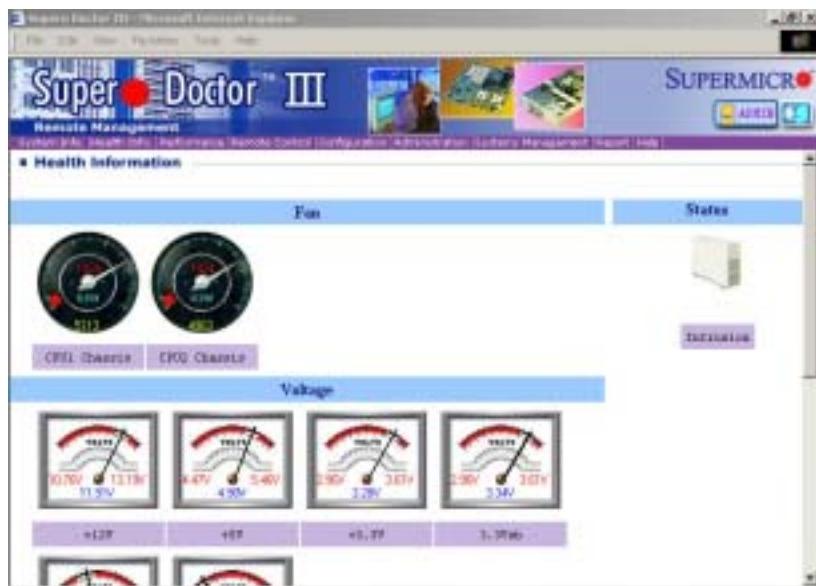
Note: For Linux, we recommend using Supero Doctor II.

Notes

Appendix D
System Specifications

Processors
Single Intel® Pentium® 4 processors of up to 3.40 GHz with HT technology or single Intel® Celeron® processors of up to 2.80 GHz at a 800/533/400 MHz front side bus speed

Chipset
Intel 875P

Memory Capacity
Four (4) DIMM slots to support a maximum of 4 GB unbuffered ECC or non-ECC DDR400/333/266 SDRAM (with a dual-channel memory bus)

DIMM Sizes
128 MB / 256 MB / 512 MB / 1 GB 184-pin modules supported

Serial ATA Controller
6300ESB controller hub incorporated into chipset

Serial ATA Backplane (non-SAF-TE)
SATA backplane (CSE-SATA-733) for four (4) SATA drives

Main Drive Bays
Four (4) 1" drive bays to house four (4) standard hot-swap SATA drives

Peripheral Bays
One (1) full-height 3.5" drive bay
Two (2) full-height 5.25" drive bays

PCI/Peripheral Card Expansion Slots
Three (3) 64-bit 66 MHz (3.3V) PCI-X slots
Two (2) 32-bit 33 MHz (5V) PCI slots
One (1) 8xAGP Slot (1.5V, backward compatible with 4xAGP and 2xAGP)

Motherboard
Model: P4SCT+II (ATX Form Factor)
Dimensions: 12 x 9.5 in (305 x 241 mm)

Chassis
Model: SC733T-350 (mid-tower)
Dimensions: (HxWxD) 16.7 x 7 x 22 in. (424 x 178 x 559 mm)

Weight
Gross Weight: 40 lbs. (18.2 kg.)

System Cooling
One (1) 12-cm thernal exhaust fan (FAN-0055)
One (1) 9-cm thermal cooling fan (FAN-0060)

System Input Requirements
AC Input Voltage: 100-240 VAC
Rated Input Current: 6A (115V) to 3A (230V)
Rated Input Frequency: 50 to 60 Hz

Power Supply
Rated Output Power: 350W (Model# SP352-PS, Part# PWS-0059)
Rated Output Voltages: +3.3V (20A), +5V (25A), +12V (24A), -12V (0.5A),
+5Vsb (2A)

BTU Rating
1860 BTUs/hr (for a rated output power of 350W)

Operating Environment
Operating Temperature: 10º to 35º C (50º to 90º F)
Non-operating Temperature: -40º to 70º C (-40º to 158º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-operating Relative Humidity: 5 to 95% (non-condensing)

Regulatory Compliance
Electromagnetic Emissions:
FCC Class B, EN 55022 Class B, EN 61000-3-2/-3-3, CISPR 22 Class B

Electromagnetic Immunity:
EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4,
EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety:
EN 60950/IEC 60950-Compliant, UL Listed (USA), CUL Listed (Canada),
TUV Certified (Germany), CE Marking (Europe)